



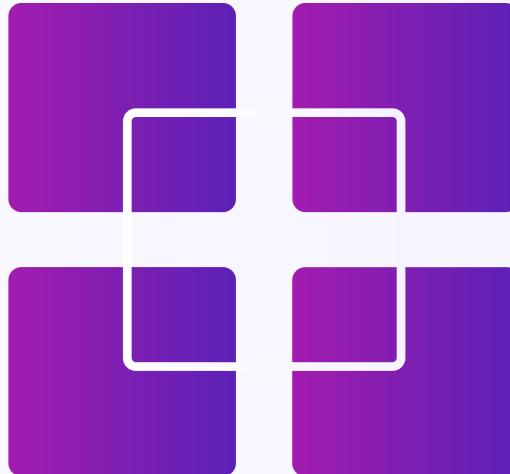
## Lecture 2

- Laboratory Experiments
- Incentives



## Agenda

- Method: Laboratory experiments
  - Wilson et al.
  - Practice: how to design an experiment
- Topic: Incentives
  - History of incentive research
  - Current directions
  - Experiments in Incentives
- Next Class



## **Method: Laboratory experiments**

## Why Lab Experiments?

- Experiment vs. Correlational study
  - Manipulation: IV and DV
  - **Random assignment** (most important)
  - Self-selection, third variable problem, recruitment (e.g., dieter)

## Why Lab Experiments?(continued)

- Validity and Realism in Experiments
  - Internal validity: Cause-and-effect conclusions
  - External validity: Robustness/generalizability of conclusions (e.g., college students)
  - Construct validity: Match between theory and method (i.e., operationalization)
    - a. "Desire for money": self-report?
    - b. "Helping behavior"
  - "Sacrifices" made in experiments
  - Programmatic research (IV; DV; replication)

# Conducting Laboratory Experiments

## Four stages

1. **Setting the stage:** Cover story, deception
  - Solving maze puzzles?
2. **Constructing IV:** Outcome vs. input manipulation
  - Internal analysis: Manipulation check?
  - Control condition?
  - Between vs. within subject design (counterbalance)
  - Demand characteristics
  - Manipulating incentives?
3. **Measuring DV** (Overt behavior, why not?)
4. **Planning follow-up**
  - Interview, debriefing, suspicion check
  - Ethical concerns -> More later in the course

**Topic: Incentives**

**Next Class**

# Money Hungry: Performance Incentives Increase Desire for Rewards

BY Julia D. Hur



**"Rewards given for meeting or exceeding certain standards in the target task"**  
**(Deci, Koestner, & Ryan, 1999)**

### Performance

Ariely, Gneezy, Loewenstein, & Mazar, 2009; Baker, 1992; Gneezy & Rustichini, 2000; Heyman & Ariely, 2004; Jenkins Jr et al., 1998; Lazear, 1986

### Intrinsic motivation

Cameron, Pierce, Banko, & Gear, 2005; Deci, Koestner, & Ryan, 1999; Eisenberger et al., 1999; Fehr & Falk, 2002; Kreps, 1997; Miceli et al., 1991; Wiersma, 1992

### Desire for reward

"Rewards given for meeting or exceeding certain standards in the target task"

(Deci, Koestner, & Ryan, 1999)



Sales  
performance



Enjoyment in  
sales work



Desire for  
money

## Central Prediction

Performance incentives will increase desire for the reward object.



## Previous Research

### Desire or value of an object is flexible

- Value money more highly when it is from labor than windfall
  - Shefrin & Thaler, 1988; Thaler & Shefrin, 1981; Zeelenberg & van Dijk, 1997
- Place greater importance on an object associated with self
  - DeVoe, Pfeffer, & Lee, 2013; Loewenstein & Issacharoff, 1994; Morewedge et al., 2009
- Desire for a specific object changes based on environments and need states
  - Finkel et al., 2011; Hofmann & Van Dillen, 2012; Metcalfe & Mischel, 1999

## Theoretical Development

### 1 Performance incentives increase attention to rewards

- Consume cognitive resources to the extent they impede performance
  - Beilock & Carr, 2005; DeCaro et al., 2011; Markman, Maddox, & Worthy, 2006
- Generate stronger activation in the reward-processing area of brain
  - O'Doherty, 2004; Zink et al., 2004

## Theoretical Development(continued)

### 2 Attention increases desire for rewards

- Attention to food cues increases craving
  - Castellanos et al., 2009; Hofmann, Friese, & Roefs, 2009; Sobik, Hutchison, & Craighead, 2005
- Distraction: effective way to decrease desire
  - Kemps et al., 2008; Mann & Ward, 2007; Mischel et al., 1972; Van Dellen & Papies, 2015
- Elaborated Intrusion theory of desire (Kavanagh, Andrade, & May, 2005)
  - Field & Cox, 2008; Harvey, Kemps, & Tiggemann, 2005; Papies, Stroebe, & Aarts, 2008

## Theoretical Development(continued)



## Overview of Studies

- **Study 1:** Main Effect on Desire
- **Study 2:** Non-monetary Reward
- **Study 3:** Reward for Bad Performance
- **Study 4:** Attention to Reward
- **Study 5:** Field Evidence

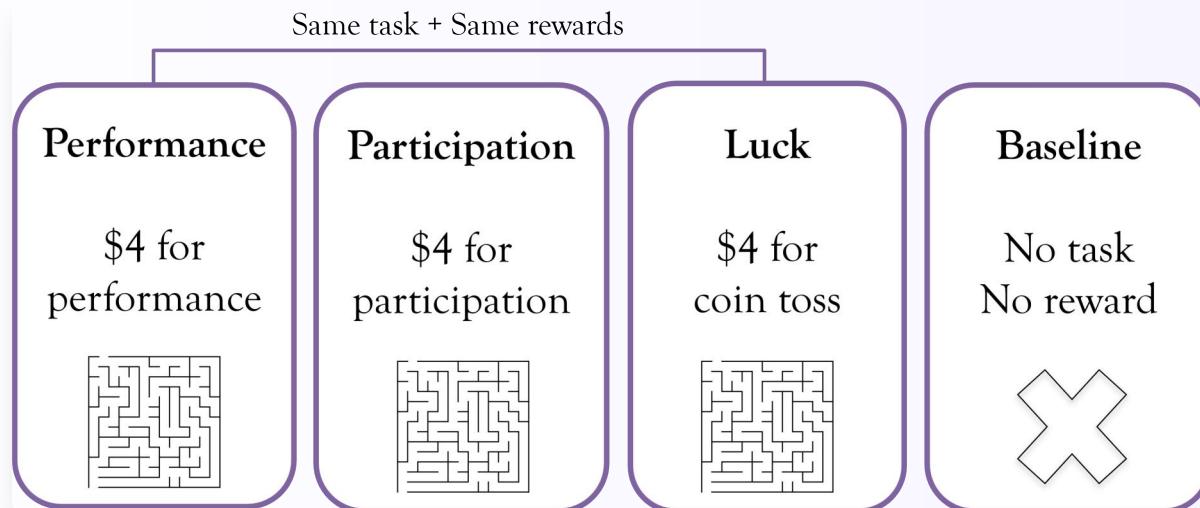
Hur, J.D. & Nordgren, L.F. (2016) 'Paying for Performance: Performance Incentives Increase Desire for the Reward Object.' JPSP, 111, 301-316.

# **Study 1**

- Goal: Test the main effect of performance incentives

# Study 1

191 MBA students in 4 conditions



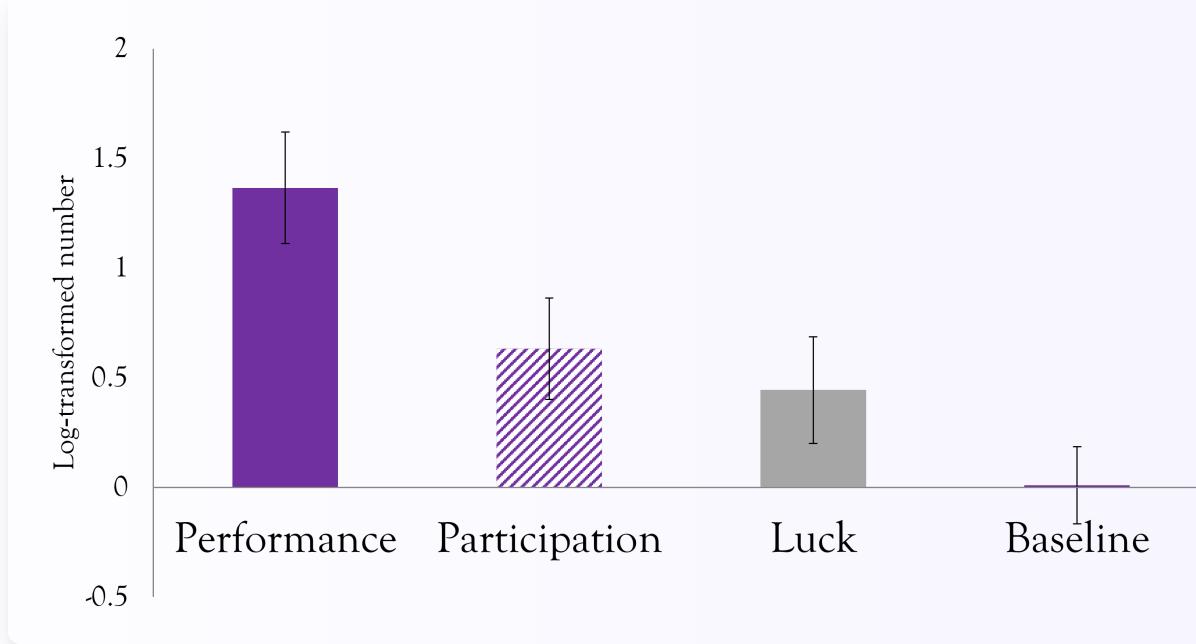
## Study 1: Dependent Measure

### DV: Desire for money

- How many tickets filled out for more money
- More tickets filled out = Stronger desire for money



## Study 1: Number of Tickets



$F(3, 189 = 5.96)$ , MSE = 2.51,  $p = .001$ ,  $\eta^2 = 0.09$ ; distribution

## **Study 2**

- Goal 1: Test the prediction with non-monetary rewards
- Goal 2: Test approach motivation as alternative explanation

## Study 2

208 MTurk participants

2 (Reward) × 2 (Object) design

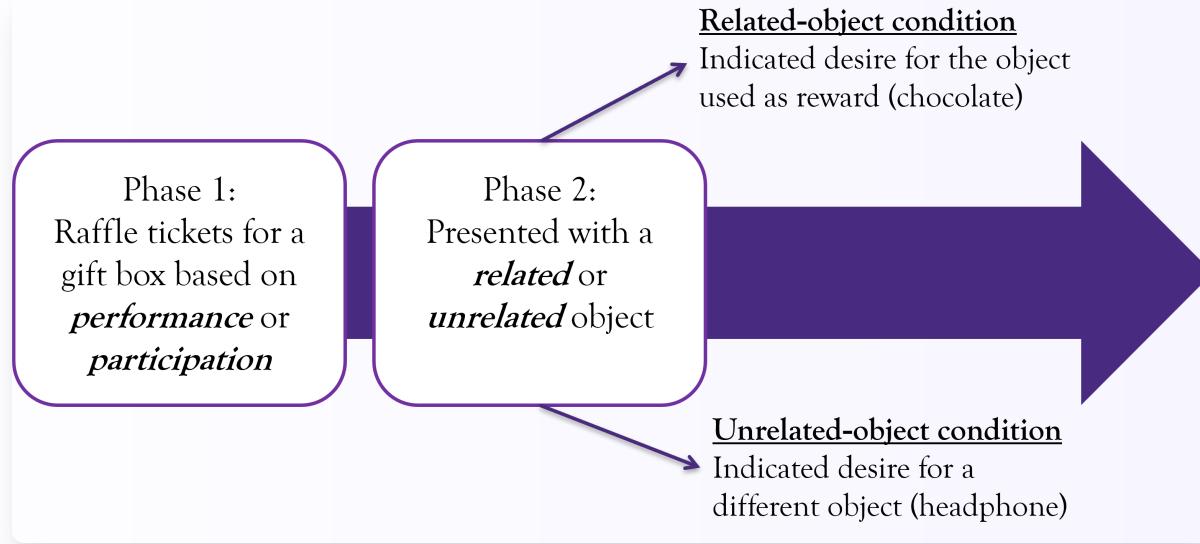
Phase 1:  
Raffle tickets for a  
gift box based on  
*performance* or  
*participation*



## Study 2

208 MTurk participants

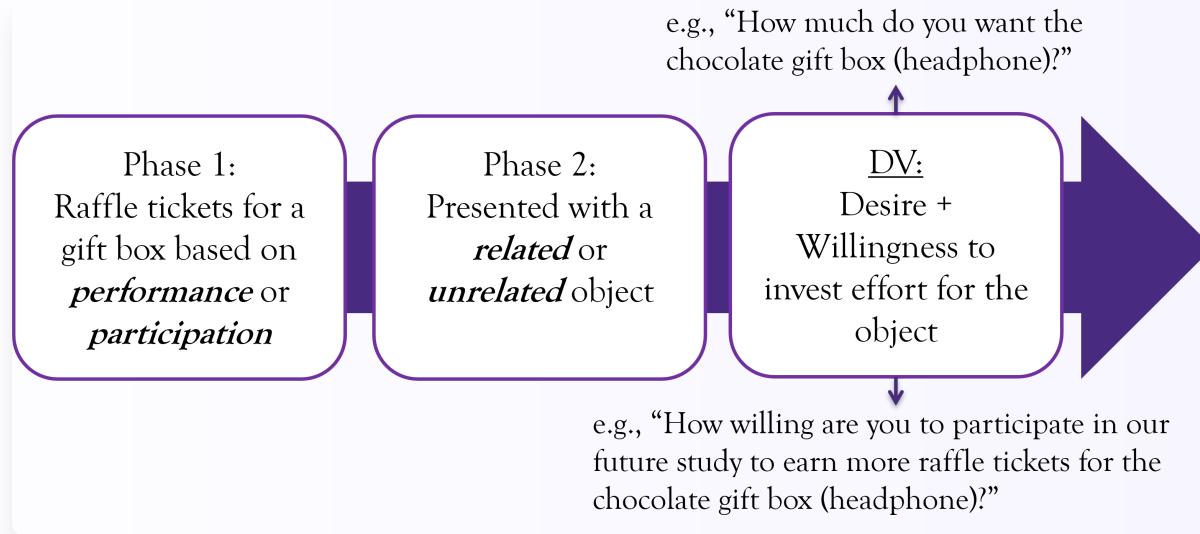
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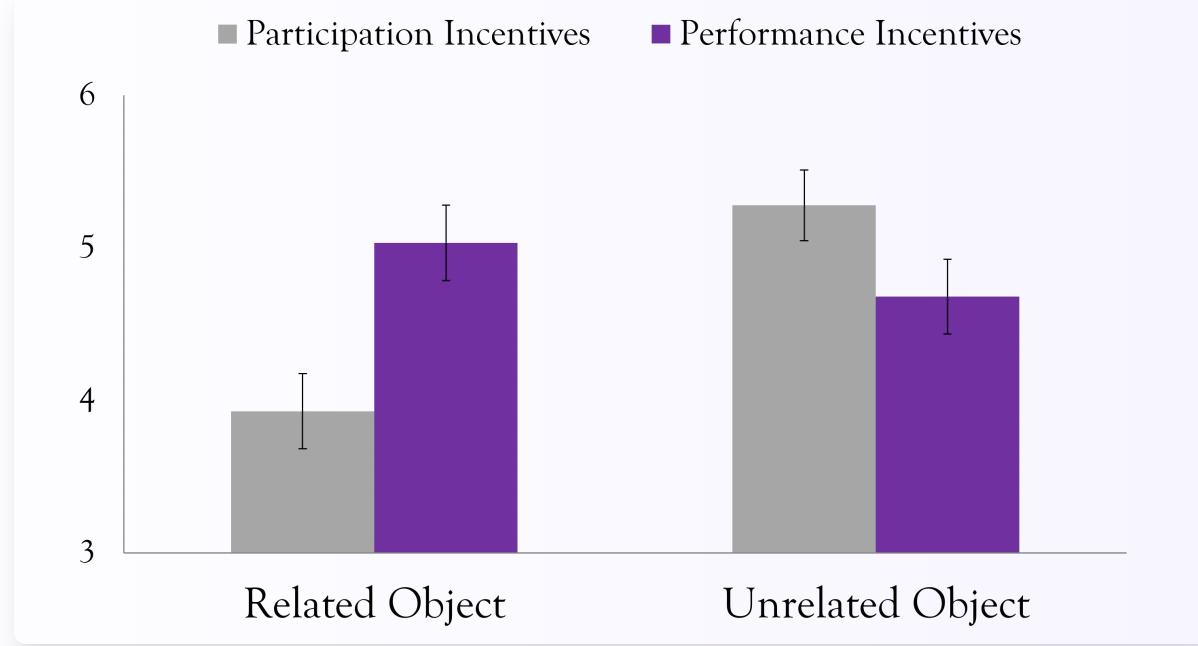
## Study 2

208 MTurk participants

2 (Reward) × 2 (Object) design



## Study 2: Desire for Object



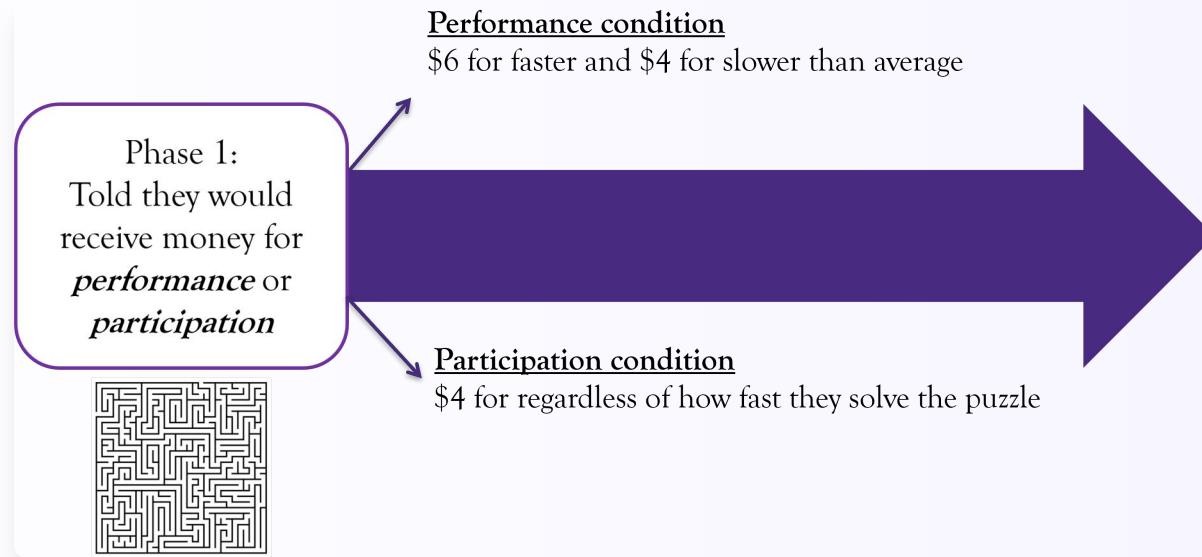
$$F(1, 207) = 13.39, \text{MSE} = 2.70, p < .001, n^2 = 0.06$$

# **Study 3**

- Goal 1: Test competence signal as alternative explanation
- Goal 2: Test effort justification as alternative explanation

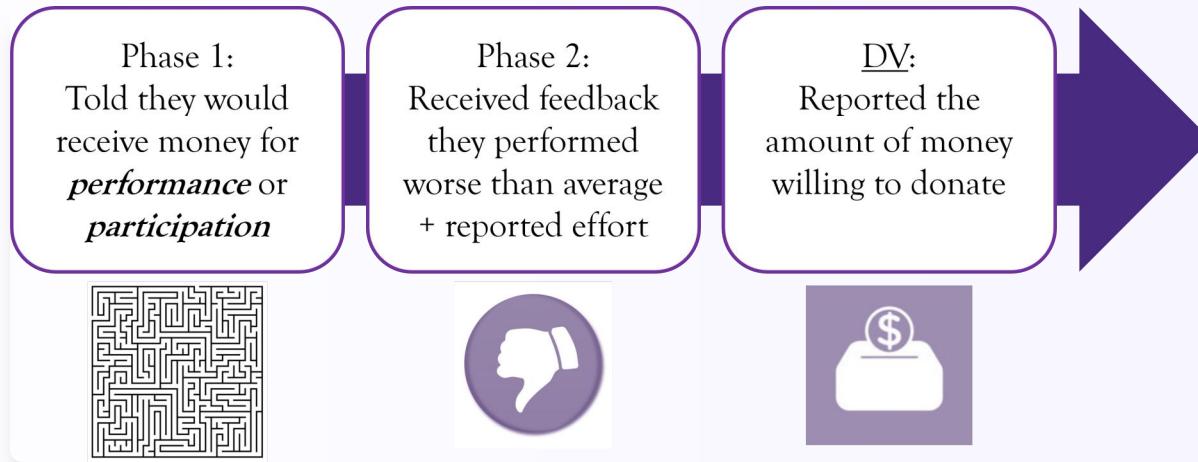
## Study 3

77 undergraduate students

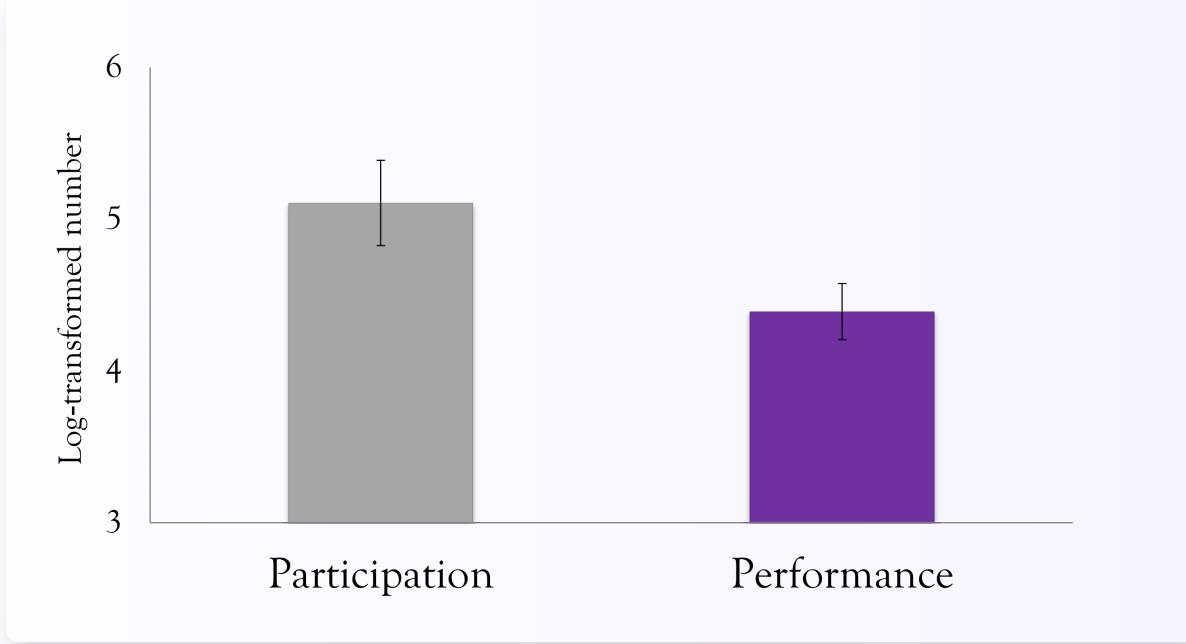


## Study 3

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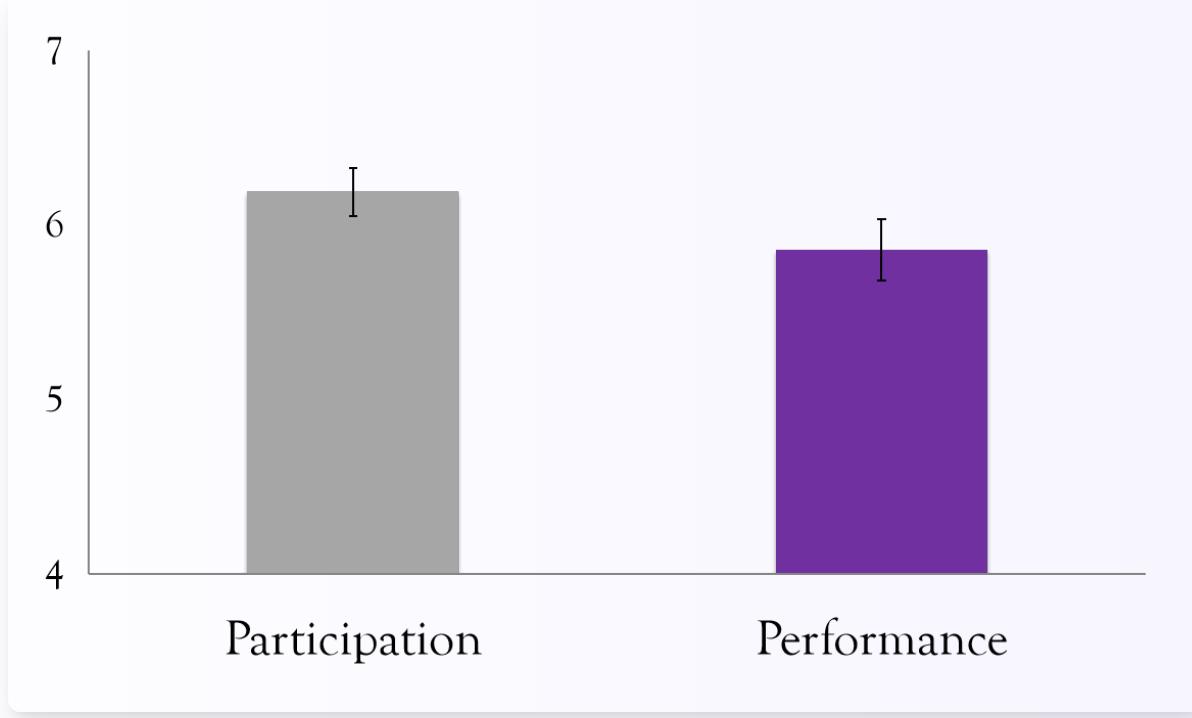


## Study 3: Amount Willing to Donate



$t(70) = -2.16, p = .034, 95\% \text{ CI } [-0.98, -0.04], d = -0.51$

## Study 3: Perceived Effort



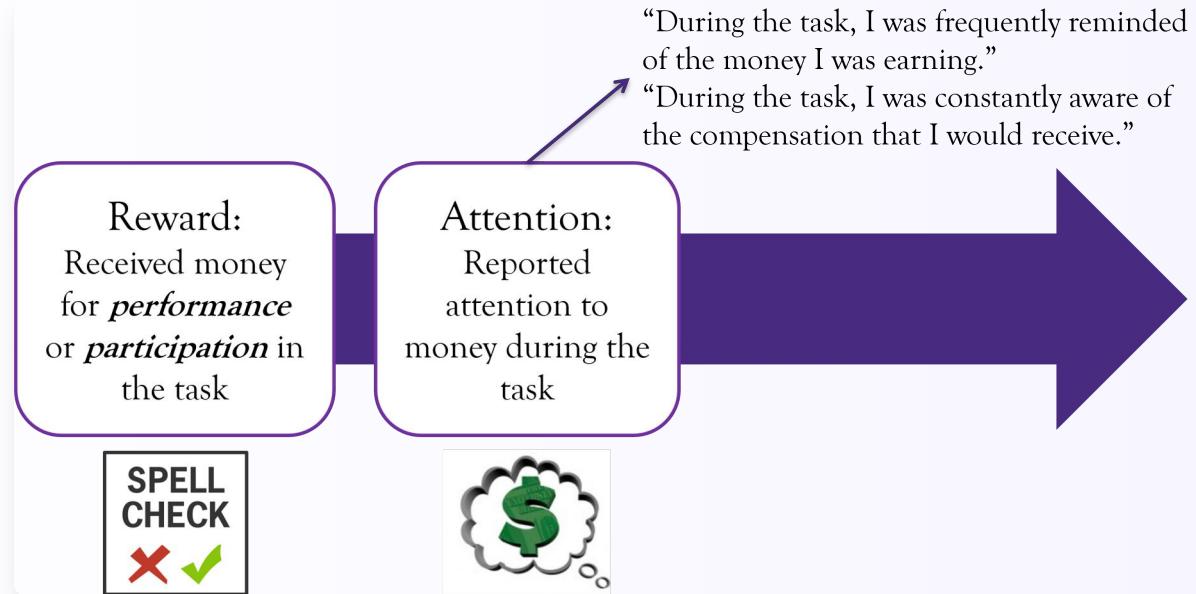
$t(70) = 1.50, p = .139, 95\% \text{ CI } [0.82, 0.11], d = 0.35$

# **Study 4**

- Goal: Test attention as the proposed mechanism

## Study 4

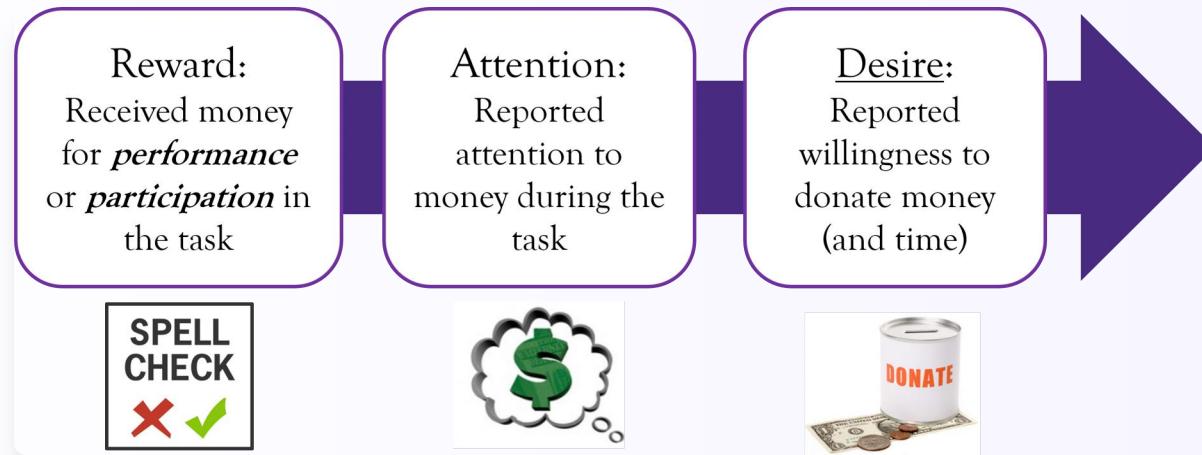
85 MTurk participants



Phillips & Freedman, 1985; Rudd, Vohs, & Aaker, 2012; Shah & Kruglanski, 2002

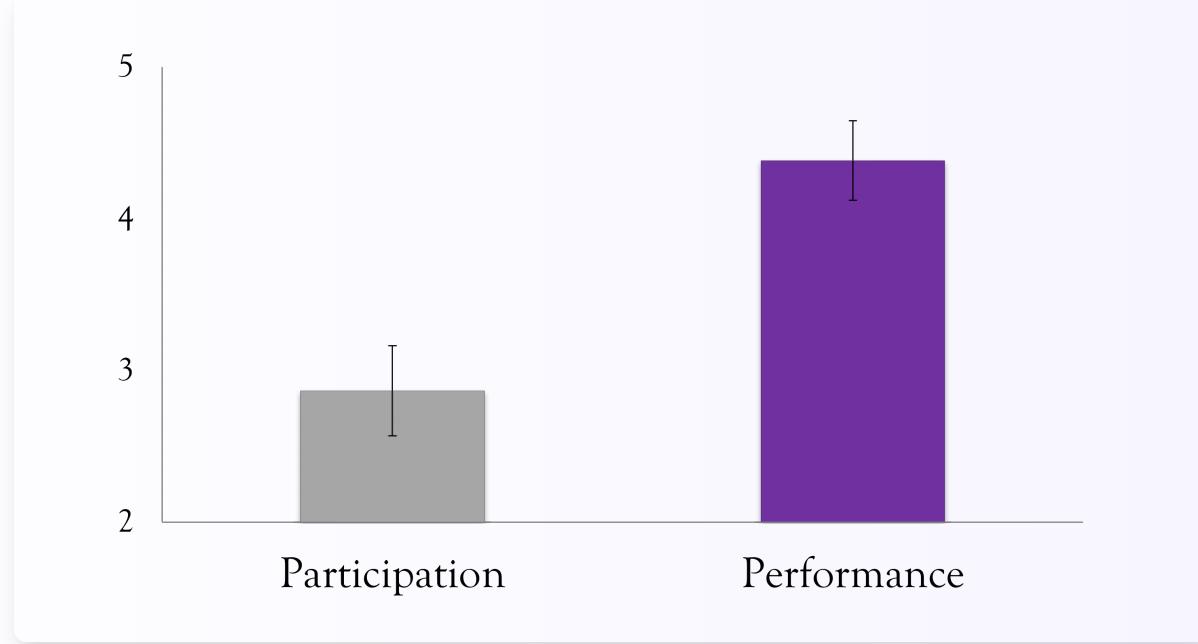
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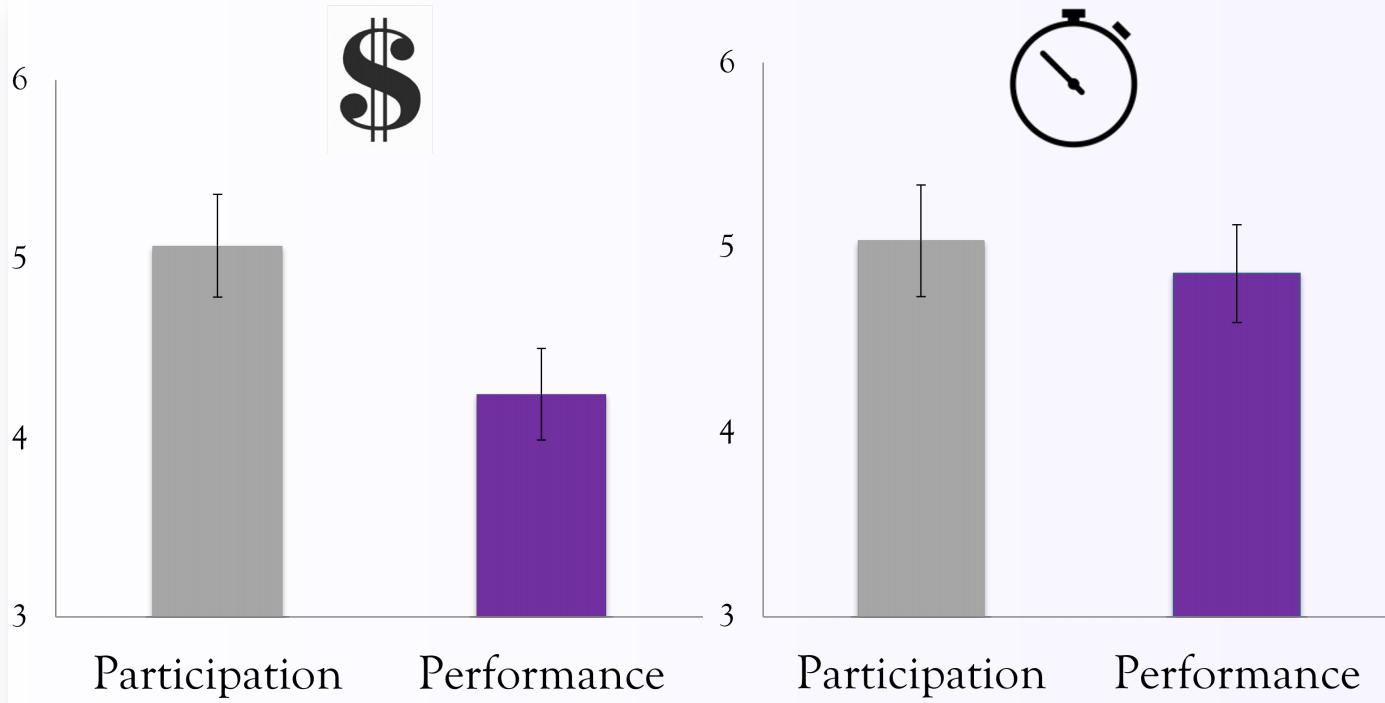
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## Study 4: Attention to Rewards

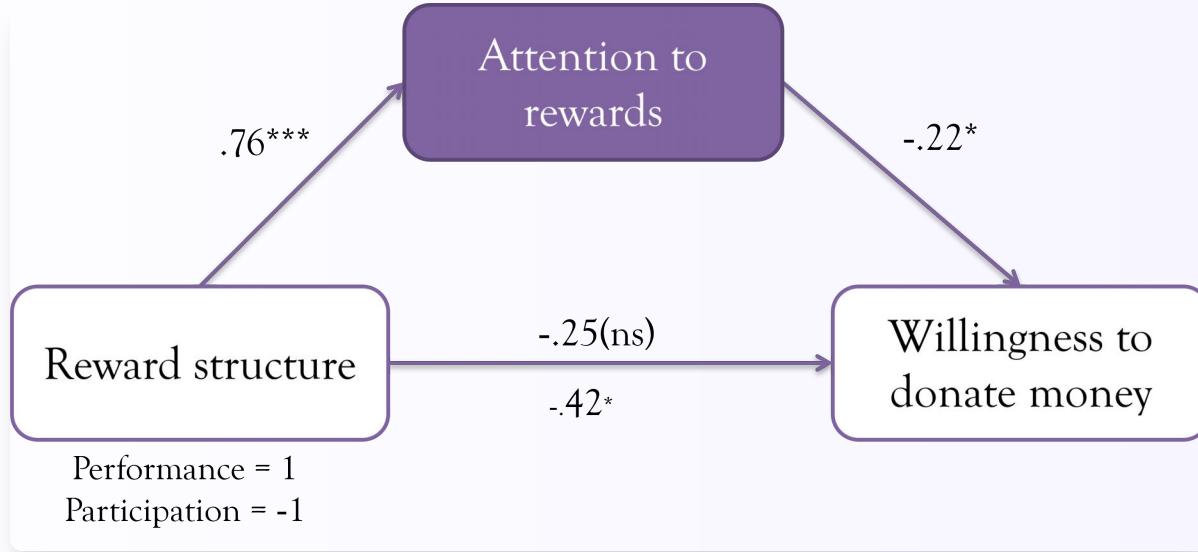


$t(78) = 3.83, p < .001, 95\% \text{ CI} [0.40, 1.32], d = 0.86$

## Study 4: Willingness to Donate



## Study 4: Mediation Analysis



95% CI = -.4585 to -.0095;  $p < .05 = ^*$ ;  $p < .01 = ^{**}$ ;  $p < .001 = ^{***}$

# **Study 5**

- Goal: Test the predictions in the field





## Performance based Franchise stores

100% pay for performance  
(397 stores)

## Participation based Direct stores

90% fixed salary  
(437 stores)

## **Study 5**

### **Sales agents from a major automotive company**

- 460 respondents (86 stores; response rate 41%)

### **Measures**

- Attention to Monetary Rewards (4 items)
  - e.g., "While I am at work, I am frequently reminded of the money that I am earning."
- Desire for Money (8 items)
  - e.g., "Earning money should be a top priority."
- Control variables
  - Including income/ job satisfaction/ intrinsic motivation/ financial security/ job security/ effort/ age/ gender/ education/ employment information

## Study 5: Attention to Money

Variable	B	SE	t	p
Incentive system	.47**	.17	2.77	.006
Perceived effort	-.01	.05	-.19	.852
Intrinsic motivation	-.03	.06	-.48	.635
Job satisfaction	-.01	.05	-.25	.802
Financial security	-.58***	.05	-10.67	<.001
Job security	-.05	.04	-1.41	.158
Gender	.70	.43	1.63	.104
Age	-.04**	.01	-3.09	.002
Education	-.14	.10	-1.43	.153
Years at the store	.01	.01	.91	.363
Previous years	.01	.01	1.45	.147
Income	.00	.00	.18	.857
Constant	7.88**	.80	9.80	<.001

p < .05 = \*; p < .01 = \*\*; p < .001 = \*\*\*

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## Study 5: Desire for Money (Model 1)

Variable	Model 1				Model 2			
	B	SE	t	p	B	SE	t	p
Incentive system	.49***	.13	3.67	<.001				
Perceived effort	.04	.04	1.16	.247				
Intrinsic motivation	.07	.04	1.74	.082				
Job satisfaction	-.05	.04	-1.01	.312				
Financial security	-.35***	.05	-7.70	<.001				
Job security	-.05	.03	-1.75	.081				
Gender	.54	.28	1.94	.053				
Age	-.02*	.01	-2.00	.046				
Education	.02	.08	.21	.832				
Years at the store	.02*	.01	2.03	.044				
Previous years	.01	.01	.99	.324				
Income	.00	.00	.38	.707				
Attention to money	—	—	—	—				
Constant	5.33***	.61	8.74	<.001				

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## Study 5: Desire for Money (Model 2)

Variable	Model 1				Model 2			
	B	SE	t	p	B	SE	t	p
Incentive system	.49***	.13	3.67	<.001	.36**	.13	2.85	.005
Perceived effort	.04	.04	1.16	.247	.05	.04	1.29	.197
Intrinsic motivation	.07	.04	1.74	.082	.08	.04	1.93	.055
Job satisfaction	-.05	.04	-1.01	.312	-.04	.04	-.97	.332
Financial security	-.35***	.05	-7.70	<.001	-.19***	.05	-3.75	<.001
Job security	-.05	.03	-1.75	.081	-.03	.03	-1.28	.202
Gender	.54	.28	1.94	.053	.34	.20	1.74	.082
Age	-.02*	.01	-2.00	.046	-.01	.01	-1.02	.307
Education	.02	.08	.21	.832	.06	.08	.74	.457
Years at the store	.02*	.01	2.03	.044	.01	.01	1.40	.161
Previous years	.01	.01	.99	.324	.00	.01	.56	.574
Income	.00	.00	.38	.707	.00	.00	.33	.739
Attention to money	—	—	—	—	.28***	.04	6.55	<.001
Constant	5.33***	.61	8.74	<.001	3.16***	.64	4.95	<.001

p < .05 = \*; p < .01 = \*\*; p < .001 = \*\*\*

## Study 5: Desire for Money (CEM)

Variable	Model 1				Model 2			
	B	SE	t	p	B	SE	t	p
Incentive system	.36**	.12	2.86	.005	.24	.12	1.97	.050
Perceived effort	.03	.05	.71	.477	.03	.04	.72	.475
Intrinsic motivation	.08	.05	1.47	.143	.08	.05	1.60	.111
Job satisfaction	-.02	.05	-.47	.638	-.03	.05	-.52	.605
Financial security	-.35***	.05	-7.10	<.001	-.21***	.05	-3.94	<.001
Job security	-.07*	.03	-2.22	.027	-.06	.03	-1.96	.051
Income	.00	.00	-.74	.457	.00	.00	-.35	.724
Attention to money	—	—	—	—	.24***	.05	5.05	<.001
Constant	5.74	.39	14.80	<.001	4.07	.50	8.19	<.001
R <sup>2</sup>	.320				.376			

p < .05 = \*; p < .01 = \*\*; p < .001 = \*\*\*

Iacus, King, & Porro, 2015, 2011

## Study 5: Desire for Money (CEM)

Variable	Model 1				Model 2			
	B	SE	t	p	B	SE	t	p
<b>Incentive system</b>	<b>.36**</b>	<b>.12</b>	<b>2.86</b>	<b>.005</b>	<b>.24</b>	<b>.12</b>	<b>1.97</b>	<b>.050</b>
Perceived effort	.03	.05	.71	.477	.03	.04	.72	.475
Intrinsic motivation	.08	.05	1.47	.143	.08	.05	1.60	.111
Job satisfaction	-.02	.05	-.47	.638	-.03	.05	-.52	.605
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Income	.00	.00	-.74	.457	.00	.00	-.35	.724
<b>Attention to money</b>	—	—	—	—	<b>.24***</b>	<b>.05</b>	<b>5.05</b>	<b>&lt;.001</b>
Constant	5.74	.39	14.80	<.001	4.07	.50	8.19	<.001
R <sup>2</sup>	.320				.376			

p < .05 = \*; p < .01 = \*\*; p < .001 = \*\*\*

Iacus, King, & Porro, 2015, 2011

**"I would think about my bonus every day. Every day for a year, I would think: what is it gonna be? Who's gonna get paid more than me? ... I wanted more money for exactly the same reason an alcoholic needs another drink. I was addicted."** from [Sam Polk](#)

## Theoretical Implications

**Identify a novel consequence of performance incentives**

**Suggest how money is earned matters**

- Kirchler et al., 2009; Muehlbacher et al., 2008; Zeelenberg & van Dijk, 1997

**Contribute to discussion on the origin of desire**

- Hofmann, Baumeister, F rster, & Vohs, 2012; Hofmann & Van Dellen, 2012; Kavanagh, Andrade, & May, 2005; Pronk, Karremans, & Wigboldus, 2011; Tidwell & Eastwick, 2013